

Application No.: 10/603,646
Office Action Dated: January 26, 2006
Response to Office Action Dated: March 31, 2006

REMARKS

Claims 1-4, 6-10 and 12-14 are pending and remain for consideration. Claims 1, 9 and 13 are amended herein.

Claims 1-3, 9, 10 and 12-14 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Schergen et al. (U.S. Pat. No. 4,360,854) in view of Herbert (U.S. Pat. No. 1,988,040). The rejection is traversed and reconsideration is respectfully requested, particularly in view of the clarifying amendments to the claims.

Schergen et al. is directed to a pair of demagnetizing coils – or more than two. The article to be demagnetized is positioned in the coils. The demagnetizing is done by reversing the polarity in a series of steps in a cycle, and the current reduced in successive steps, to a point at or near zero. The cycle can be varied as to time period, and the number of steps within a cycle varied. The applied initial voltage can be adjusted or predetermined as to maximum value, with corresponding current values, and the number of steps predetermined within the cycle independently of the maximum voltage. The apparatus can be set in manual mode, wherein the cycle timer period and number of steps can be independently set, and to automatic mode, wherein the cycle time and number of steps are directly correlated. The polarity of the applied magnetic field is counter to that of the magnetized article, in the initial step, and additional resistances utilized in establishing greater or lesser magnitude of the magnetic field in the demagnetizing coils according to the initial polarity of the magnetized piece.

The demagnetizer of Schergen et al. shows demagnetizing coils (14, 16) disposed at longitudinal ends of a workpiece (20) to be demagnetized. The demagnetizing coils of the present application as recited in amended independent claims 1 and 9, on the other hand, are located on opposite longitudinal sides of a transport path relative to one another. The placement of the coils ensures the demagnetization of all types of ferromagnetic parts (see specification at paragraph [0013]) and that the ferromagnetic object as a whole is completely demagnetized (see

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specification at paragraph [0014]).

With respect to claims 9 and 12, it is respectfully submitted that Schergen et al. does not disclose a cycled transport of objects. Schergen only discloses a cycled reversing of the polarity in a series of steps. Even by examining FIG. 1 of Schergen it appears to be impossible to drive the objects through the coils.

With respect to claim 13, Schergen et al. does not mention an automated transport of the objects or the cradles. The start switch 156 (36) of FIG. 8 starts the polarity reversing motor 36 (30) (Schergen et al. Column 4, line 17) and no transport mechanism of the objects. Schergen describes only a cycles reversing of the polarity and a cycled reduction of the current.

With respect to claims 3 and 10, it is not imaginable how the two separated coils and the object in FIG. 1 of Schergen et al. could be interpreted as one single coil. The lines of magnetic flux of such a single coil would appear to lead to huge inhomogeneities of the magnetic field so as to disturb the demagnetizing process.

Herbert is directed to a process of producing an optimum state of hardness in metals. The process includes subjecting the metals to a primary treatment to produce periodic increase and decrease of hardness, in observing by means of a hardness testing instrument the fluctuations of hardness following such treatment, in selecting a phase of fluctuation for a secondary treatment, the selection being governed by the relationship of the desired optimum hardness to the initial hardness set up by the primary treatment, and in applying a secondary treatment at such selected phase by placing the metals in a locally generated magnetic field to stabilize the fluctuations. Apparently, the Examiner believes that Herbert teaches a process for the treatment of objects being previously pre-treated for demagnetizing magnetically.

A person skilled in the art of demagnetizing ferromagnetic objects would not consult Herbert directed to curing metals in order to solve the problem of getting rid of residual magnetism. Because of Herbert et al. solves a totally different problem from that disclosed and claimed in the present application, Herbert does not use a

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demagnetizing pre-treatment for magnetically hard locations. Pre-demagnetizing magnetically hard locations as disclosed and claimed in the present application is different from a demagnetizing process for the changing of hardness in metals as disclosed in Herbert.

In view of the foregoing, it is respectfully submitted that the teachings of Schergen et al. and Herbert when taken either alone or in combination do not render obvious amended independent claims 1 and 9 of the present application. Because claims 2, 3, 10 and 12-14 each ultimately depend from and thereby incorporate the limitations of one of claims 1 and 9, these dependent claims are not obvious for at least the reasons set forth for the independent claims.

Claims 4 and 6-8 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Schergen et al. (U.S. Pat. No. 4,058,763) in view of Herbert (U.S. Pat. No. 1,988,040) and further in view of Steingroever et al. (U.S. Pat. No. 4,384,313). Claims 4 and 6-8 each ultimately depend from and thereby incorporate the limitations of claim 1. The rejection is traversed and reconsideration is respectfully requested, particularly in view of the clarifying amendments to the claims.

Steingroever et al. is directed to a process for demagnetizing components by subjecting them to the influences of the alternating magnetic field of a coil supplied by an oscillator circuit which includes a capacitor, and also includes providing a voltage supply to the oscillator at the resonant frequency and thereafter reducing the intensity of the alternating field acting on the components. This can be done in several ways, such as by varying the frequency of the supply voltage or by varying the capacitance connected in circuit with the coil. The process may also be used for calibrating permanent magnets.

As was demonstrated above with respect to claim 1 from which rejected claims 4 and 6-8 each ultimately depend, Schergen et al. and Herbert when taken either alone or in combination contain insufficient teaching to render obvious claim 1. Because claims 4 and 6-8 each incorporate the limitations of claim 1, it also follows

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that Schergen et al and Herbert contain insufficient teaching when combined with Steingroever et al. for rendering obvious claims 4 and 6-8.

In view of the foregoing, it is respectfully submitted that claims 1-4, 6-10 and 12-14 are in condition for allowance. All issues raised by the Examiner having been addressed, an early action to that effect is earnestly solicited.

No fees or deficiencies in fees are believed to be owed. However, authorization is hereby given to charge our Deposit Account No. 13-0235 in the event any such fees are owed.

Respectfully submitted,

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